



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/697,181	10/29/2003	Mohan Gopalkrishna Kulkarni	11378.53US01	8185

23552 7590 08/08/2005

MERCHANT & GOULD PC  
P.O. BOX 2903  
MINNEAPOLIS, MN 55402-0903

EXAMINER

BERNSHTEYN, MICHAEL

ART UNIT	PAPER NUMBER
----------	--------------

1713

DATE MAILED: 08/08/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 10/697,181	<b>Applicant(s)</b> KULKARNI ET AL.	
	<b>Examiner</b> Michael Bernshteyn	<b>Art Unit</b> 1713	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-23 is/are pending in the application.  
     4a) Of the above claim(s) 12-23 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-11 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☒ Claim(s) 1-23 are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
     Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
     a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |  |
|---|--|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. ____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                  | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)            |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date ____ | 6) <input type="checkbox"/> Other: ____  |

*ll*

**DETAILED ACTION**

***Election/Restrictions***

1. Restriction to one of the following inventions is required under 35 U.S.C. 121:
  - I. Claims 1-11, drawn to the composition for block copolymers, classified in class 526, subclasses 218.1.
  - II. Claims 12-23, drawn to process of preparation of block copolymers, classified in class 526, subclass 199.

The inventions are distinct, each from the other because of the following reasons:

2. Inventions II and I are related as process of making and product made. The inventions are distinct if either or both of the following can be shown: (1) that the process as claimed can be used to make other and materially different product or (2) that the product as claimed can be made by another and materially different process (MPEP § 806.05(f)). In the instant case the product as claimed can be obtained by materially different processes, such as, for example, ATRP of monomers (2) and (3) in the presence of a transitional metal catalyst, etc.
3. Because these inventions are distinct for the reasons given above and have acquired a separate status in the art as shown by their different classification, restriction for examination purposes as indicated is proper.
4. Because these inventions are distinct for the reasons given above and the search required for Group I is not required for Group II, restriction for examination purposes as indicated is proper.

5. Should the applicants elect the invention of Group I for examination on the merits, the following election requirement applies. This application contains claims directed to the following patentably distinct species of the claimed invention:

a) a polymer disclosed by a generic formula of claim 1, wherein the species of the substitute groups are refined by R1, R2, X, L and Y.

Should the applicants elect the invention of Group II for the examination on the merits, the following election requirement applies. This application contains claims directed to the following patentably distinct species of the claimed invention:

c/ a single disclosed species of a solvent should be elected;

d/ a single disclosed species of a polymerization initiator should be elected;

e/ a single disclosed species of a coupling agent should be elected.

Applicant is required under 35 U.S.C. 121 to elect a single disclosed species for prosecution on the merits to which the claims shall be restricted if no generic claim is finally held to be allowable. Currently, claims 1 and 12 are generic.

Applicant is required under 35 U.S.C. 121 to elect a single ultimate disclosed specie for each of the above genera for the prosecution on the merits to which claims shall be restricted if no generic claim is finally held allowance. Where the specific species are not identified in the claims, an applicant should elect specific specie from the specification. An alternative method of election is to identify an example, which collectively exemplifies the elected species.

Applicant is advised that a reply to this requirement must include an identification of the species that is elected consonant with this requirement, and a listing of all claims

readable thereon, including any claims subsequently added. An argument that a claim is allowable or that all claims are generic is considered nonresponsive unless accompanied by an election.

Upon the allowance of a generic claim, applicant will be entitled to consideration of claims to additional species which are written in dependent form or otherwise include all the limitations of an allowed generic claim as provided by 37 CFR 1.141. If claims are added after the election, applicant must indicate which are readable upon the elected species. MPEP § 809.02(a).

Should applicant traverse on the ground that the species are not patentably distinct, applicant should submit evidence or identify such evidence now of record showing the species to be obvious variants or clearly admit on the record that this is the case. In either instance, if the examiner finds one of the inventions unpatentable over the prior art, the evidence or admission may be used in a rejection under 35 U.S.C. 103(a) of the other invention.

6. During a telephone conversation with Mr. Mark Skoog on July 28, 2005 a provisional election was made with traverse to prosecute the invention of Group I, claims 1-11. Affirmation of this election must be made by applicant in replying to this Office action. Claims 12-23 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention. Applicant is also required to elect the species, as indicated above.

7. Claims 1-11 are active in the Application.

### ***Information Disclosure Statement***

8. The listing of references in the specification is not a proper information disclosure statement. 37 CFR 1.98(b) requires a list of all patents, publications, or other information submitted for consideration by the Office, and MPEP § 609 A(1) states, "the list may not be incorporated into the specification but must be submitted in a separate paper." Therefore, unless the references have been cited by the examiner on form PTO-892, they have not been considered.

9. The information disclosure statement (IDS) was not submitted on 10/29/2003 and after the mailing date of the Application 10/697181 on 10/29/2003. The submission must be in compliance with the provisions of 37 CFR 1.97. Accordingly, the information disclosure statement has to be considered by the examiner.

### ***Specification***

10. The disclosure is objected to because of the following informalities. The summary of the invention includes unnecessary details. The number of Application "Oligomers and preparation there of" wherein the information about these copending Application is missing (page 14, line 1 and page 15, line 1). Correction is required. See MPEP § 608.01(b).

### ***Double Patenting***

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Omum*, 686 F.2d 937, 214 USPQ 761 (CCPA

Art Unit: 1713

1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970);and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

11. Claims 1-11 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-14 of U.S. Patent No. 6,825,308 in view of Mandeville et al. (U.S. Patent 5,891,862). Although the conflicting claims are not identical, they are not patentably distinct from each other because claim 1 of U.S. Patent No. 6,825,308 recites the copolymer substantially identical to that instantly claimed, the only difference is that one extra atom S in the main chain is generally claimed in the instant Application.

It is taught by Mandeville et al. that co-monomers of structure (III) and structure (VIII) containing polysaccharide residues can be copolymerized with each other via a spacer group containing s-heteroatom (abstract), wherein this spacer group is substantially identical to the one instantly claimed (col.27 lines 44-56 and col. 28, lines 1-8).

Therefore, it would have been obvious to those skilled in the art at the time the invention was made to include the S-R-S containing spacer groups, as taught by Mandeville in the claims of US 6.825,308 in order to increase the hydrophobicity of the resulting polymer and in order to bind to viruses via at least two types of interactions due to pending functional groups (col. 5, lines 54-58 and col. 8, lines 38-42), and thus to

arrive at the subject matter of claim 1 of Application No. 10/697,181. The limitations of dependent claims of US 6,825,308 are identical to the limitations of dependent claims of Application.

Therefore, the instant claims are obvious variants of claims of US 6,825,308, and one skilled in the art would not be able to practice the invention of the instant claims without infringing the invention of US 6,825,308.

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.



2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

12. Claims 1-11 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Mandeville et al. (U.S. Patent 5,891,862).

Mandeville discloses polymerizable monomers comprising a fucoside moiety which is attached by a spacer group for example, an alkylene group, or an alkylene group, wherein one or more carbon atoms are substituted by heteroatoms, such as oxygen, nitrogen or **sulfur** atoms. The polymer can be a homopolymer or a copolymer (abstract and col. 3 lines 17-19 and 41-43). Mandeville discloses that the polymer characterized by polymerized monomer of Formula III and a polymerized monomer of Formula VIII containing polysaccharide residues can be copolymerized with each other via a spacer group containing **s-heteroatom** (abstract), wherein this spacer group is substantially identical to the one instantly claimed (col.27 lines 44-56 and col. 28, lines

1-8). Furthermore, by the virtue of copolymerization of two monomers with different activity towards each other, as in Mandeville, the block copolymer is inherently formed.

Mandeville does not disclose the instantly claimed block copolymer containing these two monomers (Formula II and Formula VIII). However, Mandeville clearly suggests the polymer which described above is used for a method of treating a rotavirus infection in a mammal, a therapeutically effective amount of polymer characterized by a polymerized fucoside-bearing monomer and a polymerized sialic acid-bearing monomer.

It is noted that in instant claims block copolymer was made from the oligomers shown in specification (page 2, formulas 2 and 3). It appear that the oligomer according formula 2 in the Application is identical to monomer according formula III in US'892, and the oligomer according formula 3 in the Application is identical to monomer according formula VIII in US'892 (compare page 21 line 5 in the specification of Application and col. 8 line 30 in US'862). The process for the preparation of block copolymer in Application and components used(Example 2, page 25-26) are also identical to US'892 (Examples 17 (col. 19, line 32 through col.21, line 20) and 18 (col. 21, line 22 through col. 22, line 15)).

Therefore, it is the examiner position to believe that polymer characterized by a polymerized monomer of Formula III and a polymerized monomer of Formula VIII in US'892 (col. 27, line 44 through col. 28 line 8) would be identical to the instant claimed block copolymer. Furthermore, by the virtue of copolymerization of two monomers with

Art Unit: 1713

different activity towards each other, as in Mandeville, the block copolymer is inherently formed.

Even if assuming that the polymer of Mandeville is not a block copolymer, it would still have been obvious to one skilled in the art at the time the invention was made to obtain a block polymer from a monomer of Formula VIII and a monomer which does not bear a glycoside moiety, such as acrylamide, N-(2-hydroxyethyl)acrylamide, or (2-hydroxyethyl)vinylamine (monomer of Formula I, Formula II or Formula III) using the S-R-S containing spacer groups as taught by Mandeville (col. 8, lines 26-42) in order to increase the hydrophobicity of the resulting polymer and also bind to viruses via at least two types of interactions due to pending functional groups as suggested by Mandeville (col. 5, lines 54-58 and col. 8, lines 38-42), and thus to arrive at the subject matter of claim 1 of Application No. 10/697,181.

### ***Conclusion***

Other references used but not cited in this office include U.S. Patents 6,822,064, 6,605,714, 6,660,484, 6,630,154, 6,538,072, 6,512,109, 6,316,606, 6,271,315, 6,187,762, 6,043,328, 6,018,033, 5,587,442 and WO 2002/055021 are shown on the Notice of References Cited Form (PTO-892).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael Bernshteyn whose telephone number is 571-272-2411. The examiner can normally be reached on M-F 8-5:30.


Art Unit: 1713

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Wu can be reached on 571-272-1114. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Michael Bernshteyn  
Patent Examiner  
Art Unit 1713

MB  
08/04/2005

  
DAVID W. WU  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 1700